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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,435	01/23/2004	John E. P. Syka	12671-042001	6074

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FISH & RICHARDSON P.C.
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
GURZO, PAUL M	
ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/764,435	SYKA, JOHN E. P.	
	Examiner	Art Unit	
	Paul Gurzo	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *1/23/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-14 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoen et al. (5,089,703).

Regarding claim 1, 703 teaches a method of trapping or guiding ions comprising the steps of introducing ions into an ion trap or ion guide, the ion trap or ion guide including a first set of electrodes and a second set of electrodes, the first set of electrodes defining a first portion of an on channel to trap or guide the introduced ions, applying periodic voltages to electrodes in the first set of electrodes that radially confines the ions in the ion channel, and applying periodic voltages to electrodes in the second set of electrodes that axially confines the ions in the ion channel (col. 17, lines 32-42 and Fig. 8). 703 also teaches generating an oscillating electric potential (col. 19, lines 7-38), and though they do not explicitly teach a first and second oscillating electric potential, it is obvious that the first and second frequency application to the electrodes and the corresponding oscillations according the different frequencies will lead to a first and second oscillating electric potential. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have such potential applications so that the ions can be detected with increased resolution.

Regarding claims 2-14, ion traps or guides operate with positive and negative ions introduced at the appropriate ends. 703 teaches the application of a DC voltage (bias) to the ion trap (guide) (col. 1, line 25) and a first and second, different voltage to the electrodes (col. 17, lines 32-42). These frequencies have a ratio of about two. Fig. 8 clearly depicts the claimed oscillating electric potential application, quadrupole, dipole potential, and first and second set of rod electrodes. It is obvious that the oscillating electric potentials are applied to the ions based on their mass to charge to ensure desired ion transmission and/or retention by providing the desired potential barrier.

Regarding claim 17, 703 teaches an apparatus comprising a first and second set of electrodes, the first set of electrodes arranged to define a first portion of an ion channel to trap or guide ions and a controller configured to apply periodic voltages to electrodes in the first set and the second set to establish a first oscillating electric potential and a second oscillating electric potential, wherein the first and second oscillating electric potentials have different spatial distributions and confine ions in the ion channel in radial and axial directions as stated above (col. 17, lines 32-42 and Fig. 8).

Regarding claims 18-22, ion traps or guides operate with positive and negative ions introduced at the appropriate ends. 703 teaches the application of a DC voltage (bias) to the ion trap (guide) (col. 1, line 25) and a first and second, different voltage to the electrodes (col. 17, lines 32-42). These frequencies have a ratio of about two. Fig. 8 clearly depicts the claimed first and second set of rod electrodes.

Claims 15, 16, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoen et al. (5,089,703) in view of Wells (6,730,904).

Regarding claims 15, 16, 23, and 24, 703 does not explicitly teach plate ion lens electrodes. However, 904 teaches plate electrodes (58a-d) and the potential application to these plate electrodes will act to focus and transmit the ions, thus teaching on the claimed plate ion lens electrodes (col. 5, lines 36-38 and Fig. 3A-3C). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to such electrodes to ensure desired guiding or trapping of the ions.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Baba et al. (6,075,244)

Thompson et al. (6,111,250)

Senko (6,403,955)

Syka (6,844,547)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Gurzo whose telephone number is (571) 272-2472. The examiner can normally be reached on M-Fri. 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached at (571) 272-2477. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMG